

SEQUENCE LISTING

<110> Wang, Huaming
Bodie, Elizabeth A.

<120> Phenol Oxidizing Enzymes

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<141> 1999-12-21

<150> US 09/220,871
<151> 1998-12-23

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Ala Ala Gly Asp Asp Asp Trp Glu Ser Pro Pro Tyr Asn Leu Leu Tyr
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Arg Asn Ala Leu Pro Ile Pro Pro Val Lys Gln Pro Lys Met Ile Ile
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Thr Asn Pro Val Thr Gly Lys Asp Ile Trp Tyr Tyr Glu Ile Glu Ile
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Val Gly Tyr Asp Gly Met Ser Pro Gly Pro Thr Phe Asn Val Pro Arg

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Gly Thr Glu Thr Val Val Arg Phe Ile Asn Asn Ala Thr Val Glu Asn
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Ala Glu Asp Val Thr Phe Pro Gly Glu Tyr Lys Asp Tyr Tyr Phe Pro
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Asn Tyr Gln Ser Ala Arg Leu Leu Trp Tyr His Asp His Ala Phe Met
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Lys Thr Ala Glu Asn Ala Tyr Phe Gly Gln Ala Gly Ala Tyr Ile Ile
195 200 205

Asn Asp Glu Ala Glu Asp Ala Leu Gly Leu Pro Ser Gly Tyr Gly Glu
210 215 220

Phe Asp Ile Pro Leu Ile Leu Thr Ala Lys Tyr Tyr Asn Ala Asp Gly
225 230 235 240

Thr Leu Arg Ser Thr Glu Gly Glu Asp Gln Asp Leu Trp Gly Asp Val
245 250 255

Ile His Val Asn Gln Pro Trp Pro Phe Leu Asn Val Gln Pro Arg
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Lys Tyr Arg Phe Arg Phe Leu Asn Ala Ala Val Ser Arg Ala Trp Leu
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Leu Tyr Leu Val Arg Thr Ser Ser Pro Asn Val Arg Ile Pro Phe Gln
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Val Ile Ala Ser Asp Ala Gly Leu Leu Gln Ala Pro Val Gln Thr Ser
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Asn Leu Tyr Leu Ala Val Ala Glu Arg Tyr Glu Ile Ile Ile Asp Phe
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Asn Asp Val Gly Asp Glu Asp Glu Tyr Ala Arg Thr Leu Glu Val Met
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Arg Phe Val Val Ser Ser Gly Thr Val Glu Asp Asn Ser Gln Val Pro
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Asp Lys His Phe Lys Phe Glu Arg Ser Asn Gly His Tyr Leu Ile Asn
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Asp Val Gly Phe Ala Asp Val Asn Glu Arg Val Leu Ala Lys Pro Glu
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Leu Gly Thr Val Glu Val Trp Glu Leu Glu Asn Ser Ser Gly Gly Trp
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Ser His Pro Val His Ile His Leu Val Asp Phe Lys Ile Leu Lys Arg
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Thr Gly Arg Gly Gln Val Met Pro Tyr Glu Ser Ala Gly Leu Lys
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Tyr Gln Pro Trp Thr Gly Ala Tyr Met Trp His Cys His Asn Leu Ile
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His Glu Asp Asn Asp Met Met Ala Val Phe Asn Val Thr Ala Met Glu
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Glu Lys Gly Tyr Leu Gln Glu Asp Phe Glu Asp Pro Met Asn Pro Lys
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Tyr Glu Ile Val Ile Lys Pro Phe Thr Gln Gln Val Tyr Pro Ser Leu
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Val Thr Ala Ser Leu Glu Gln Tyr Tyr Lys Thr Asn Gln Lys Arg His		
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aaaccCTTA	accaacAGGT	ctatCCAAGT	ctacgtCCTG	ctcgcttGGT	aggctatGAT	420
ggcattTCAC	caggCCCTAC	gatcatCGTG	ccgagaggAA	cagaAGCCGT	tgtacgATTc	480
gtaaaccAGG	gtgatcgCGA	gagttcgATT	catcttCATG	gttctCCCTC	ccgtgCCCCC	540
tttgcaggAT	gggctgaAGA	tttgattatG	aaggGCCAT	tcaaaggTAC	aacagaacAA	600
tcttatGCT	cagggtGCCT	cttttataCT	aacacgACTC	gttcttagAC	tactactACC	660
cgaacaACCA	ggctGCCAGA	ttcctgtGGT	accacgatCA	tgctatGcat	gttGtaAGTC	720
ttgcagactA	atcatGGGAG	cgaaACGGAA	agatCGGGCT	gacacttATG	cagactGCGG	780
aaaatGCCtA	ttttggacAG	gctggcgcCT	acctgatCAC	agaccCAGT	gaggacGCC	840
tcggCCtCC	ttcgggttAC	ggaaaatacG	acatCCCACT	ggtgctcAGT	tccaagttCT	900
acaacAGTGA	tggaactCTC	cagaccAGTG	tgggagaAGA	caacAGTCTC	tggggcGACG	960
tcatccatGT	caacGGTCAG	ccctGCCAT	tcttcaACGT	tgagcCTCGA	aagtatCGCC	1020
ttcgattCCT	caatGCGGCT	gtttctCGGA	actttGCCCT	ctatttCGTC	aagcaacaAG	1080
ccactGCTAC	tagactCCt	ttccaggtCA	ttgcctCTGA	tgCAGGGCTA	ctcacGcACC	1140
cggtCCAAAC	ctcagatATT	taCTGGCAG	cagcagAGCG	ctacgagATT	gtattcgACT	1200
ttgcgcCTTA	tgCAGGCCAG	acgatAGATT	tgCgtAACTT	tgcaaaggCC	aatggggTCG	1260
gcaccGATGA	cgattatGCA	aacactGACA	aggtcatGCG	cttccatGTC	agcagCCAAG	1320
cagtCGTCGA	taactCGGTG	gtacCCGAC	agctatCTCA	gatccAGTTc	cccgCCGACA	1380
aaaccGGCAT	cgaccACCCAC	ttccgCTTC	atcgcacCAA	cagcagGTGG	cgcataACG	1440
gcatCGGTT	tgCAGACGTC	cagaACCGTA	tcctGGCCAA	ggtaccGCGC	ggcactGTCG	1500
agctatGGGA	actcgAGAAC	agctCCGGCG	gtggTCGCA	ccccatCCAC	gtccacCTGG	1560
tcgacttCCG	agtCGTCGA	cgctacGGTG	acgaaAGCAC	tcgCGGCGTC	atGCCtACG	1620
agtCCGCCGG	tctcaaggAC	gtcgtgtGGC	tcggCCGCGA	cgagacGGTG	ctcgtcGAAG	1680
cacaCTACGC	cccCTGGGAC	ggagTCTACA	tgttCCACTG	ccacaACCTG	atCCACGAAG	1740
accaAGACAT	gatggCCGCG	tttgacgtGA	ctaagCTCCA	gaactttGGC	tacaACGAGA	1800
cgacGGATT	ccacGACCCG	gaagattCTC	gtggTCGTC	aagaccCTTC	accGCGGCTG	1860
acttgcACGGC	gcatGCGGTT	atcttCTCAG	aagcatCCAT	caggGCTAGA	gtgaacGAGT	1920
tggcgtGGA	acagCCGTAC	agcgaACTGG	cacaggtCAC	ggcctCGCTC	gagcagtACT	1980
acaagacGAA	caagaaACGC	caggCCAGT	gcgaagACAT	gcctgCTGGC	cccattCCCC	2040

gttatcgac gtttcaggc tga

2063

<210> 7
<211> 627
<212> PRT
<213> Curvularia pallescens

<400> 7
Met Val Ala Lys Tyr Leu Phe Ser Ala Leu Gln Leu Ala Ser Ile Ala
1 5 10 15
Lys Gly Ile Tyr Gly Val Ala Leu Ser Glu Arg Pro Ala Lys Tyr Ile
20 25 30
Asp Glu Thr Pro Asp Glu Glu Lys Ala Ala Leu Ala Ala Ile Val Glu
35 40 45
Asp Asp Pro Ala Asp Val Phe Arg Ile Leu Lys Asp Trp Gln Ser Pro
50 55 60
Glu Tyr Pro Ile Leu Phe Arg Glu Ala Leu Pro Ile Pro Pro Ala Lys
65 70 75 80
Glu Pro Asn Lys Met Thr Asn Pro Val Thr Asn Lys Glu Ile Trp Tyr
85 90 95
Tyr Glu Ile Val Ile Lys Pro Phe Asn Gln Gln Val Tyr Pro Ser Leu
100 105 110
Arg Pro Ala Arg Leu Val Gly Tyr Asp Gly Ile Ser Pro Gly Pro Thr
115 120 125
Ile Ile Val Pro Arg Gly Thr Glu Ala Val Val Arg Phe Val Asn Gln
130 135 140
Gly Asp Arg Glu Ser Ser Ile His Leu His Gly Ser Pro Ser Arg Ala
145 150 155 160
Pro Phe Asp Gly Trp Ala Glu Asp Leu Ile Met Lys Gly Gln Phe Lys
165 170 175
Asp Tyr Tyr Tyr Pro Asn Asn Gln Ala Ala Arg Phe Leu Trp Tyr His
180 185 190
Asp His Ala Met His Val Thr Ala Glu Asn Ala Tyr Phe Gly Gln Ala
195 200 205
Gly Ala Tyr Leu Ile Thr Asp Pro Ala Glu Asp Ala Leu Gly Leu Pro
210 215 220
Ser Gly Tyr Gly Lys Tyr Asp Ile Pro Leu Val Leu Ser Ser Lys Phe
225 230 235 240
Tyr Asn Ser Asp Gly Thr Leu Gln Thr Ser Val Gly Glu Asp Asn Ser
245 250 255
Leu Trp Gly Asp Val Ile His Val Asn Gly Gln Pro Trp Pro Phe Phe
260 265 270
Asn Val Glu Pro Arg Lys Tyr Arg Leu Arg Phe Leu Asn Ala Ala Val
275 280 285
Ser Arg Asn Phe Ala Leu Tyr Phe Val Lys Gln Gln Ala Thr Ala Thr
290 295 300
Arg Leu Pro Phe Gln Val Ile Ala Ser Asp Ala Gly Leu Leu Thr His
305 310 315 320
Pro Val Gln Thr Ser Asp Ile Tyr Val Ala Ala Ala Glu Arg Tyr Glu
325 330 335
Ile Val Phe Asp Phe Ala Pro Tyr Ala Gly Gln Thr Ile Asp Leu Arg
340 345 350
Asn Phe Ala Lys Ala Asn Gly Val Gly Thr Asp Asp Asp Tyr Ala Asn
355 360 365
Thr Asp Lys Val Met Arg Phe His Val Ser Ser Gln Ala Val Val Asp
370 375 380
Asn Ser Val Val Pro Ala Gln Leu Ser Gln Ile Gln Phe Pro Ala Asp

385	390	395	400
Lys Thr Gly Ile Asp His His Phe Arg Phe His Arg Thr Asn Ser Glu			
405	410	415	
Trp Arg Ile Asn Gly Ile Gly Phe Ala Asp Val Gln Asn Arg Ile Leu			
420	425	430	
Ala Lys Val Pro Arg Gly Thr Val Glu Leu Trp Glu Leu Glu Asn Ser			
435	440	445	
Ser Gly Gly Trp Ser His Pro Ile His Leu Val His Leu Val Asp Phe Arg			
450	455	460	
Val Val Ala Arg Tyr Gly Asp Glu Ser Thr Arg Gly Val Met Pro Tyr			
465	470	475	480
Glu Ser Ala Gly Leu Lys Asp Val Val Trp Leu Gly Arg His Glu Thr			
485	490	495	
Val Leu Val Glu Ala His Tyr Ala Pro Trp Asp Gly Val Tyr Met Phe			
500	505	510	
His Cys His Asn Leu Ile His Glu Asp Gln Asp Met Met Ala Ala Phe			
515	520	525	
Asp Val Thr Lys Leu Gln Asn Phe Gly Tyr Asn Glu Thr Thr Asp Phe			
530	535	540	
His Asp Pro Glu Asp Ser Arg Trp Ser Ala Arg Pro Phe Thr Ala Ala			
545	550	555	560
Asp Leu Thr Ala Arg Ser Gly Ile Phe Ser Glu Ala Ser Ile Arg Ala			
565	570	575	
Arg Val Asn Glu Leu Ala Leu Glu Gln Pro Tyr Ser Glu Leu Ala Gln			
580	585	590	
Val Thr Ala Ser Leu Glu Gln Tyr Tyr Lys Thr Asn Lys Lys Arg Gln			
595	600	605	
Ala Glu Cys Glu Asp Met Pro Ala Gly Pro Ile Pro Arg Tyr Arg Arg			
610	615	620	
Phe Gln Val			
625			

<210> 8
 <211> 858
 <212> DNA
 <213> Amerosporium atrum

<220>
 <221> misc_feature
 <222> (1)...(858)
 <223> n = A,T,C or G

<400> 8

caccgcggag aacgcttact ttggtaagg tggttttac attctgcacg accccgctga	60
agatgcattt ggtctgcctt ctggcaagta tgatgtacct cttgcactgt cctccaagca	120
gtacaacagc gacggtaccc tcttcgaccc caaggacgag accgattcac tggcgccgaa	180
tgtcatccac gtcaacggac agccatggcc ctacttaag gtcgagcctc gcaagtaccc	240
tctccgcttc ctcaatgctg ctatcagccg tgccttcaag ctcactttcg aggctgtatgg	300
caaagtgtatc aactttccctg tcatacggtgc cgataactgggt ctcttgacca agcctgttca	360
gacaaggcaac ctggagatct ctatggccga gcgctgggag gttgttttg acttcagccaa	420
atttccggg aagaacgtca ccctcaagaa cggtcgcgt gtgcagcactg atgaggacta	480
caactccacc gacaaaagtca tgcaggctgt tggggcaag gatgttacga gccaggctgg	540
taatggcaac ctccccggct ctctgcgcac tggcccttc cctccataaga agggggcggag	600
tgcacaggag ctggagatcc ggcaggacc ggtggccagt ggactgttac tggcttgacc	660
ttcgctgtatc tcaacaaccc catcctggct aagcccccaa cgtggtgcca tggaggttt	720
gggagctttg agaacttcca gcggnggntg gtcttaccct tggccacatc cacctgggtc	780
gactttccag atncttgtct tgcactggan gcaaggcncc ccgttnataac tncnanaaag	840

gaagcactt caaggcg

858

<210> 9
<211> 114
<212> PRT
<213> Amerosporium atrum

<220>
<221> VARIANT
<222> (1)...(114)
<223> Xaa = space of unknown number of aa

<400> 9
Thr Ala Glu Asn Ala Tyr Phe Gly Gln Ala Gly Phe Tyr Ile Leu His
1 5 10 15
Asp Pro Ala Glu Asp Ala Leu Gly Leu Pro Ser Gly Lys Tyr Asp Val
20 25 30
Pro Leu Ala Leu Ser Leu Lys Ala Tyr Asn Ser Asp Gly Thr Leu Phe
35 40 45
Asp Pro Lys Asp Glu Thr Asp Ser Leu Phe Gly Asp Val Ile His Val
50 55 60
Asn Gly Gln Pro Trp Pro Tyr Leu Lys Val Glu Pro Arg Lys Tyr Arg
65 70 75 80
Leu Arg Phe Leu Asn Ala Ala Ile Ser Arg Ala Phe Lys Xaa Val Trp
85 90 95
Glu Leu Glu Asn Thr Ser Ser Gly Gly Trp Ser Tyr Pro Val His Ile
100 105 110
His Leu

<210> 10
<211> 19
<212> PRT
<213> Stachybotrys chartarum

<220>
<221> VARIANT
<222> (1)...(19)
<223> Xaa = Any Amino Acid

<400> 10
Asp Tyr Tyr Phe Pro Asn Tyr Gln Ser Ala Arg Leu Leu Xaa Tyr His
1 5 10 15
Asp His Ala

<210> 11
<211> 13
<212> PRT
<213> Stachybotrys chartarum

<400> 11
Arg Gly Gln Val Met Pro Tyr Glu Ser Ala Gly Leu Lys
1 5 10

<210> 12
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> degenerated primer

<221> misc_feature
<222> (12)...(12)
<223> n = A,T,C or G

<221> misc_feature
<222> (15)...(20)
<223> n = T or C

<400> 12
tattacttgc cnaantanca

20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> degenerated primer

<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 13
tcgtatggca tnacctgncc

20

<210> 14
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<221> misc_feature
<222> (1)...(20)
<223> n = T or C

<400> 14
tggtaccang ancangct

18

<210> 15
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<221> misc_feature
<222> (1)...(1)

<223> n = A or G

<221> misc_feature
<222> (10)...(10)
<223> n = T or G

<400> 15
ngactcgta n ggcatac

18

<210> 16
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<221> misc_feature
<222> (1)...(21)
<223> n = A or G

<400> 16
tcgtggatga nnttgtgnca n

21

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<221> misc_feature
<222> (2)...(2)
<223> n = A,T,C or G

<221> misc_feature
<222> (5)...(10)
<223> n = A or G

<221> misc_feature
<222> (13)...(13)
<223> n = T or C

<221> misc_feature
<222> (15)...(15)
<223> n = A or G

<400> 17
cnagacnacn tcnttnagac c

21